Appl. No. 09/776,379
Amdt. Dated April 17, 2007
Reply to Office Action of January 26, 2007

Attorney Docket No. 82347.0002
Customer No.: 26021

REMARKS/ARGUMENTS

Claims 1-35 were pending in the application, with claims 2-6 and 9-35 having been withdrawn. By this amendment, new claims 36-39 are being added, to advance the prosecution of the application. No new matter is involved.

In the Office Action of January 26, 2007, claims 1, 7 and 8 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. 2002/0091605 of Labe, Jr. et al. Such rejection is respectfully traversed.

Claims 1, 7 and 8 were previously rejected in the Office Action of March 20, 2006 as being clearly anticipated by Labe, Jr. et al. In responding to this rejection, applicant amended claim 7 and set forth various remarks. In responding to those remarks, the Office Action of September 12, 2006 basically argues that applicant's comments with respect to differences of the present invention over Labe, Jr. et al. are not recited in the claims.

In response to this, applicant points out that the differences are recited in claims 1, 7 and 8 and particularly in new claims 36-39 being added thereto.

Claim 1 defines a method of portfolio management comprising communicating with at least one investor through the Internet, receiving investment parameters from said at least one investor, and generating at least one portfolio according to said investment parameters. Claim 37 depends from and further defines claim 1 in terms of "the step of generating at least one portfolio includes custom tailoring asset class factors or investment styles with screening tools, and presetting rebalancing conditions".

For ease of explanation of the present invention and the manner in which distinguishes over the Labe reference, Applicant has attached a drawing "Figure 2"

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at the end hereof. The attached "Figure 2" is similar to but a refinement of Fig. 2 of the application.

In accordance with the present invention, users are asked to give detailed information regarding their individual investment preferences using a HTML form on the client system and received by a server system. The server system receives the user's investment preferences as investment horizon, a minimum cash reserve, annual target return, desired risk level, stop loss, upper/lower limits for portfolio rebalance, return tolerance, and other strategic rebalancing strategies and updates to database. Then, as the second step, the server system sends to the client system additional HTML forms to define the details of the portfolio they wish to create. The user defines his or her investment styles by choosing a set of fundamental, technical and other market value criteria. The server system processes these query criteria and selects those securities, which satisfy the investor requirement for styles and preferences, and saves them. Thus, when the investor specifies his or her investment styles with various screening tools such as the firm's fundamental, technical and other market value criteria, he or she is in fact custom tailoring his or her asset class.

Further in accordance with the present invention, the user presets various specific and quite unique rebalancing conditions, as recited in new claim 37. Thus, the investor may specify a desirable frequency of rebalancing based on how actively the investor wishes to manage his or her funds. Examples of re-balancing strategies include the following:

$E[S]$ An expected return on a scenario portfolio.

v   A value of a new scenario portfolio divided by that of an existing portfolio.

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E[0]   An expected return on the existing portfolio.

E[M]   An expected return on the market benchmark.

G   A geometric return on the existing portfolio since inception.

H   A holding period return on the existing portfolio since the last trade.

HS   A holding period return on the existing portfolio since inception.

ST   Stop loss since inception. Default $= 10\%$.

T   Target return.

M   A geometric return on the benchmark portfolio since the last trade.

m   A holding period return on the benchmark portfolio since last trade.

L   A lower bound filter. Default $= -0.75\%$.

U   An upper bound filter. Default $= 1.5\%$.

S   A current value of the existing stock portfolio.

Whenever the expected quantity is computed, such as E[S], E[0], E[M] and the like, these involve forward looking statistics, which the system would have computed.

Nine different trading modes can be defined for further illustration of the present invention, as follows:

(1)   Initial Mode (to be used when a portfolio is first incepted)

1.1 $E[S]v > T > E[0]$
1.2 $E[S]v > E[M]$

(2)   Stop Loss Mode

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If the investor's stop loss limit is x% and if HS < - x% and S > 0 then the present invention will attempt to liquidate the investor's entire holdings and puts them into a cash account. A HOLD flag will be clear and a TRADE flag will be set with a query message like "Your portfolio has reached your stop loss. Do you wish to have your investment liquidated to limit losses?" If a reply from the investor is affirmative, SELL orders of securities will be automatically executed. If the reply is negative, the system is resumed back to normal mode to continue monitoring the portfolio performance.

(3)   Redemption Mode

When HS > T and S > 0 for the existing portfolio, the system will prompt with a query message like "You have now achieved your target return. Do you wish to have your investment redeemed?" to the investor. If the reply is affirmative, a REDEMPTION flag is set and a redemption algorithm is executed by the computer server 20. If negative, the system returns to the normal mode to continue.

(4)   Buy & Hold (P-) Mode

When $E[S]v > T > E[0]$, the EPS is in a Buy & Hold mode. As such, the system will attempt to buy securities either already listed in the existing portfolio or listed in a scenario portfolio. The system will compare the existing portfolio against the scenario portfolio and will determine which and how may shares of the securities in the existing portfolio need to be traded.

(5)   Market (M-) Mode

M1. $E[S]v > M > E[0]$
M2. $E[S]v > E[M] > E[0]$

(6)   Bear (R-) Mode

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$E[M] < M$

(7)   Bull (B-) Mode

$E[M] > M$

(8)   Lower Filter (L-) Mode

L1. $H < 0$

L2. $ABS(Hv) > ABS(L)$

L3. $ABS(m-Hv) > ABS(L)$

(9)   Upper Filter (U-) Mode

U1. $H > 0$

U2. $Hv > U$

U3. $(Hv - m) > U$

In accordance with the present invention, based on the user determined parameters or values mentioned above, the user presets the following rebalancing strategies or conditions. These also are neither disclosed nor suggested by Labe, Jr. et al.

(1)   Buy and Hold Strategy: TRADE only if P-Mode satisfies.

(2)   Managed Strategy: HOLD will change to TRADE, if $E[S]v > E[0]$; and R-Mode and L-Mode; or B-Mode and U-Mode.

(3)   Benchmark Strategy: If $E[M] < M$, TRADE if both (M1) and (M2) satisfy. If $E[M] > M$, TRADE only if (M2) satisfies.

(4)   Passive Benchmark Strategy: TRADE if both P-Mode and conditions for Benchmark Strategy satisfy.

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(5)   Managed Benchmark Strategy: TRADE if conditions for <u>both</u> Managed and Benchmark Strategies satisfy.

(6)   Profit Only Strategy: TRADE if P-Mode <u>and</u> the condition that Hv > (L + U)/2 satisfy, e.g. Hv > (-0.75 + 1.50)/2 = 0.375%

Managed strategies using L- and U-Modes can be further simplified by introducing the trading band (TB) parameter defined as TB = (L + U)/2, where L = -U/2. When TB is set by the investor, it would automatically set values of L and U.

Claim 1 defines a method of portfolio management comprising communicating with at least one investor through the Internet, receiving investment parameters from said at least one investor, and generating at least one portfolio according to said investment parameters. Claim 38 depends from and further defines claim 1 in terms of "the step of generating at least one portfolio includes initially choosing candidate securities before a final list of securities is chosen and configuring optimality by a mathematical algorithm."

Contrary to what is maintained in the prior Office Action, techniques of constructing custom tailored portfolios have been thoroughly discussed in connection with the claims. First, the TPS central server formulates what is known as Tara Index. It then ranks the set of stocks against the user preferences and outputs a list of stocks for an optimum portfolio to buy and sell with the numbers of shares to buy and sell in real time. The portfolios are continuously monitored by TPS and when triggering events occur, a trade recommendation is sent. Figure 2 offers intuitive mathematical ideas, where securities are ranked in a descending order according to their expected return premium to risk ratio. Although the risk of

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individual securities is defined as something similar to beta, as is found in Modern Portfolio Theory, it is different from the traditional beta.

In TPS, security returns are not regressed (unless the user is interested in forming an index fund) against what is often considered as the aggregate market index, *e.g.* Dow Jones, S&P, etc. but against returns on a particular investment style, or a particular asset class, which satisfies the investor requirement. Nowhere in the Labe reference can beta be measured in reference to returns on asset classes other than the more popular market index returns. This technique is neither disclosed nor suggested by the Labe reference.

Second, once a group of candidate stocks chosen according to the investor preference is ranked in a descending order, TPS begins to form various scenario portfolios. For example, it considers a single stock portfolio of one best stock in the ranking, a portfolio of two best stocks, a portfolio of three best stocks, etc. as is shown in Figure 2. The optimal number of securities in a portfolio is determined where the marginal contribution of an additional security to the portfolio turns negative. Optimal proportion among component securities in the portfolio is determined according to the contribution that each security makes to the portfolio. If the entire contribution made by all securities in the portfolio can be represented by the shaded triangular area, the contribution that each security makes to the portfolio is that portion of the shaded area corresponding to each security. This is similar in concept to what is known as "consumer surplus" in elementary economics.

This method is also quite unique, and is distinctly different from the method, if any, in the Labe, et al. reference.

Third, as compared to the Capital Asset Pricing Model (CAPM), wherein securities are priced under the assumption that the probability distribution parameters for security returns are stationary, the present invention dynamically changes distribution parameters for rebalancing portfolios, existing or scenario, to achieve efficiency in real time. The present invention also suggests various re-balancing strategies by comparing the expected returns on the existing portfolio to those on scenario portfolios subject to a user specified parameter referred to herein as the trading band limit. The trading band limit defines both lower and upper bounds at which the user's portfolio may require a rebalancing trade. If the user sets the band high at a level, rebalancing trades may occur less frequently than when the band is set low.

The rebalancing technique is specific, detailed and thorough, and is neither disclosed nor suggested by the Labe reference. Furthermore, the present invention introduces special algorithms.

Actual portfolio weights achieved under various realistic constraints to parameters mentioned above may differ considerably from optimal weights as suggested by the mathematical algorithm in the computer server 20. This would be so, especially when the available cash of a particular investor may be limited to buy enough shares of securities, as the system would have recommended. Thus it would be unrealistic to achieve the same expected return on an existing portfolio as that from a scenario portfolio, which is supposedly optimal, proposed by the system. A series of mathematical iteration to adjust to optimal portfolio weights by correcting the existing weights may result in continuous trading resulting in tremendous transaction costs. In many cases the final solution reached through continued trades might converge either with a dampening or explosive oscillation.

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Consequently, the present invention requests the investor to specify a tolerance level for the expected return on the existing portfolio compared to that on a scenario portfolio in order to force an approximate solution during calculating an optimized performance of the existing portfolio.

The automatic cash allocation algorithm and setting the precision or tolerance level in the algorithm are all unique and specific, and are neither disclosed nor suggested by the Labe reference. The original claims clearly laid down the system's basic features and architectures as follows, in addition to the above descriptions of the present embodiment.

An embodiment of the present invention includes the following logical or business components in the computer server 20:

- Query component
- Portfolio component
- Accounting components
- Monitoring components
- Quote and chart components
- User account information components

Each component is respectively a combination of software and/or hardware entities, such as a set of mathematical algorithm codes or an electronic circuit, which describes the logic or performs a computation.

Query Component

A Query module of the computer server 20 assists the user in screening stocks and selecting these into his/her portfolio. The user specifies his/her

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investment requirements (e.g., the P/E ratio, etc.), preferences (e.g., the industry type, etc.) or other criteria to the computer server 20. The Query module then generate queries (e.g., a list of stocks satisfying the user requirements and preferences) based on the above-mentioned user-specified data such as the industry type, P/E ratio, etc., and feeds back queries to the user. The user may select stocks into his portfolio from the list returned by the query procedure. The investment style refers, in fact, to a particular asset class.

The data used by the Query module to generate the query list typically come from databases that are widely available with or without fees to the public over the Internet and other sources, and these data should be updated by the computer server 20 frequently for maintaining the most updated information of investment data.

Portfolio Component

The Portfolio Component includes several sub-modules for the computer server algorithms, trading strategies, portfolio preferences, and/or trading. One sub-module implements a predetermined mathematical algorithm derived from Modern Portfolio Theory, which determines the types and quantities of stocks, bonds and mutual funds to trade for the user portfolio. The output of the computer server 20 engine is a scenario portfolio that is theoretically the most efficient portfolio fitting the user investment objectives, given constraints imposed by practical considerations, such as the size of a round of stocks.

Real time data of stocks is constantly monitored by the computer server 20 to determine the values of the user's present existing portfolio and the scenario portfolio computed by the server engine. Expected returns of the stocks in the

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portfolios (existing or scenario), the actual track record of the present existing portfolio, and market conditions are used to trigger actual trading of securities in the existing portfolio when necessary.

Trading may be in a manual or an automatic mode. Automatic mode may be convenient for users/investors testing their investment strategies with "virtual cash." Since the theoretically optimal portfolio may be slightly different at each point in time the triggering module is used to limit the frequency of re-balancing.

Claim 1 defines a method of portfolio management comprising communicating with at least one investor through the Internet, receiving investment parameters from said at least one investor, and generating at least one portfolio according to said investment parameters. Claim 36 depends from and further defines claim 1 in terms of "the step of generating at least one portfolio includes computing forward looking estimates for each of a plurality of securities including a securities expected return, volatility and covariance with other security returns."

Claim 7 defines a method of portfolio management comprising communicating with at least one investor through the Internet, receiving investment parameters from said at least one investor, and generating at least one portfolio according to said investment parameters, said step of generating at least one portfolio comprising generating at least one optimal scenario portfolio in accordance with said investment parameters and current market conditions. Claim 39 depends from and further defines claim 7 in terms of "the step of generating at least one optimal scenario portfolio in accordance with said investment parameters

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and current market conditions includes configuring an optimal cash allocation consistent with the investor's risk preference or tolerance."

Thus, the claims define the features in accordance with the invention that both the optimal portfolio of risky assets and the optimal cash allocations are subject to readjustment.

Computer server 20 provides investor questionnaires over a network 30 such as the Internet. The user specifies his expected target return, R_T, for his entire investment portfolio (inclusive of his cash balances) and make revelation about his preferences toward risk in terms of his target beta, β_T. Given the rate of interest, R_c, paid on his cash management account and on Treasuries; .... and the rate of return on a portfolio of risky assets, R_1, which comprises of bonds and equity, the investor's required R_T determines his optimal cash allocation, ω, i.e. $R_T = (\omega R_c + (1 - \omega)R_1$. The question is we have to also know R_1 in order to determine ω.

Under Modern Portfolio Theory (MPT), ..., $R_1 = R_c + (R_m - R_c)\beta_1$ .... But, ..., $\beta_1 = \Phi \beta_b + (1-\Phi) \beta_s$ Therefore, knowing β_b and β_s will determine the investor's optimal bond-equity asset allocation, Φ. Given a particular value of the expected yield to maturity on bonds, R_T, and the bonds' volatility or standard deviation, σ_b, the methods defined by the claims determine the optimal value of R_s, i.e. the expected return on the optimal stock portfolio, and the optimal stock portfolio's volatility or standard deviation, σ_s . The technique is essentially equivalent to shifting the vertical axis to the right by the amount of σ_b, and then to applying the Sharpe ratio as the maximizing objective function. This above approach is neither disclosed nor suggested by the Labe reference. Therefore, in accordance with the present invention, finding the optimal value of the expected return and the

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standard deviation for the equity portfolio is a routine mathematical solution. Selecting a set of mutual funds is straightforward and follows a similar procedure. Thus the present invention determines the investor's asset allocation, cash management account, optimal bond, stock or even mutual fund portfolios in real time while managing the user's investment risk automatically.

In conclusion, claims 1, 7, 8 and 36-39 are submitted to clearly distinguish patentably over Labe for the reason set forth above. Therefore, reconsideration and allowance are respectfully requested.

Respectfully submitted,

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